# INSTALLATION MANUAL

## TARGET BLU EYE 2


TARGET
BLU EYE 2

***Know what's out there...***

CE

# CONTENT

## INTRODUCTION

Thank you for choosing Target Blu Eye 2. With Target Blu Eye, you will always be warned well in advance of approaching emergency services, including ambulances, fire trucks, police, and unmarked surveillance vehicles, even when they are traveling at high speed without lights or sirens.

Emergency services use so-called Tetra radio systems. Once the radio in an emergency vehicle is activated, it periodically transmits ultra-short pulses to the network's antenna masts. These pulses are detected by Target Blu Eye and converted into a warning signal.

As a result, Target Blu Eye significantly enhances your safety, the safety of emergency services, and the safety of your fellow road users.

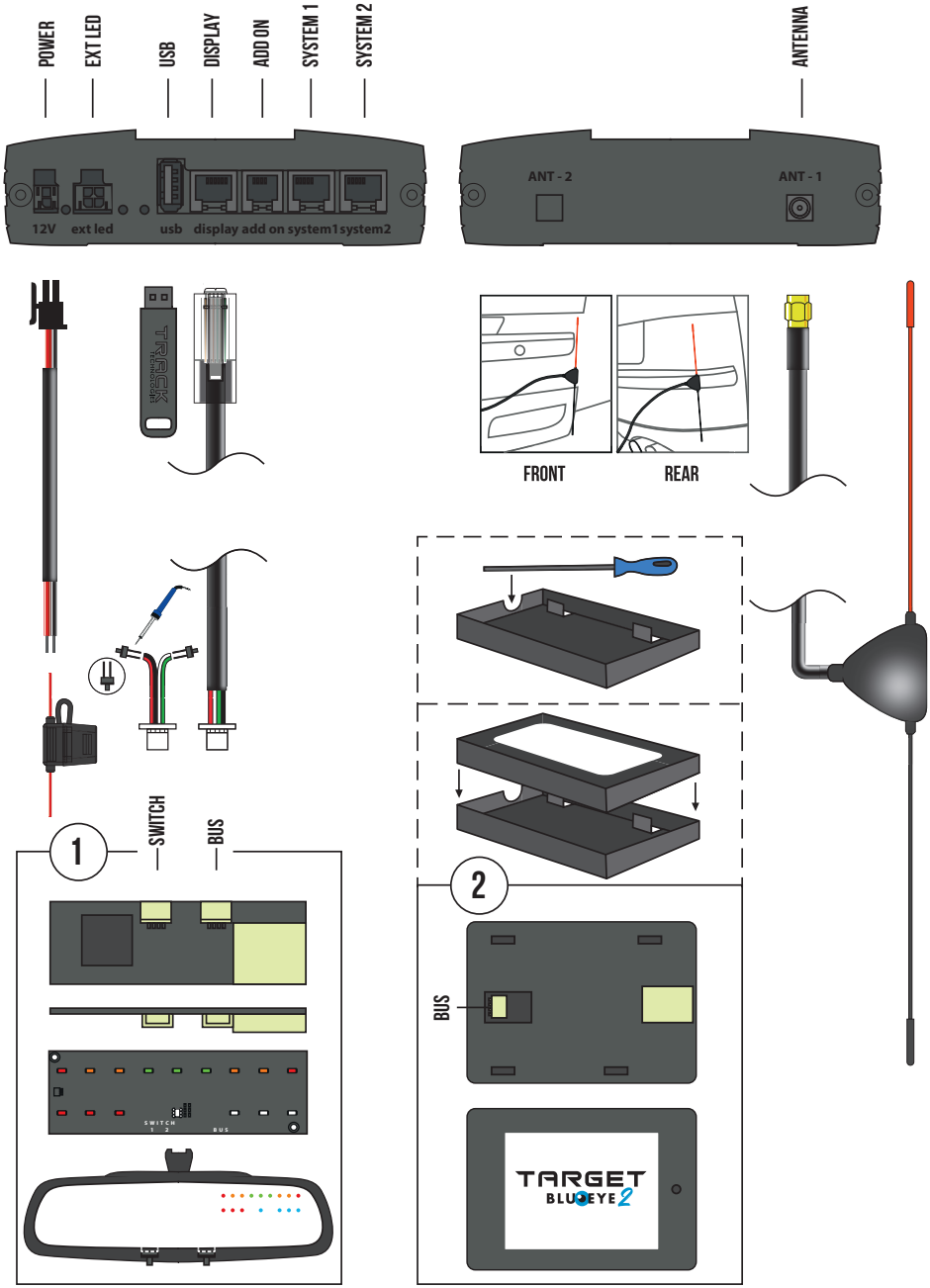
## IN THE BOX

- Quick start instructions
- Target Blu Eye 2 receiver
- LED display for mounting in the rearview mirror (including 2 microswitches and connection cable)

or

- LCD display
- VCD dipole antenna for hidden installation behind the front or rear bumper
- Connection cable between receiver and display
- Power cable with fuse
- USB drive

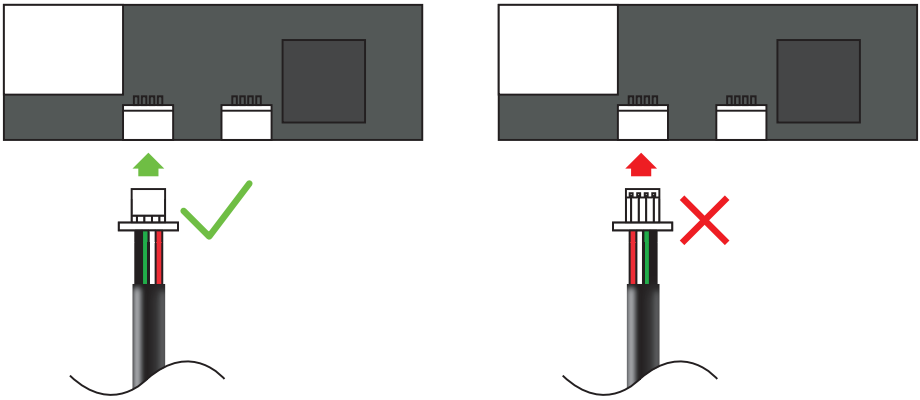
## CONNECTION DIAGRAM WITH LED AND/OR LCD DISPLAY



## CONNECTING THE DISPLAYS

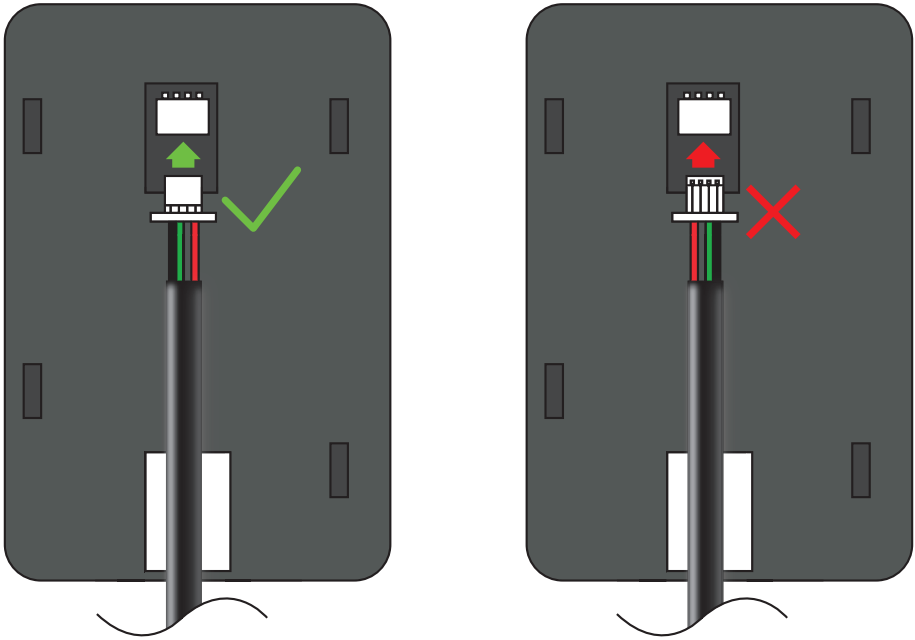
### LED display

The plug of the display cable should be connected to the PCB connector of the LED display, as indicated in the illustration below. This is marked with **'BUS'**.



### LCD display

- The plug of the display cable should be connected to the PCB connector of the LCD display, as indicated in the illustration below.



## INSTALLATION OF THE LED DISPLAY IN THE REAR-VIEW MIRROR

Remove the rear-view mirror from the car. If you're unsure how to do this, there are many helpful videos available on YouTube that explain the process for each make, model, and year of the respective car.

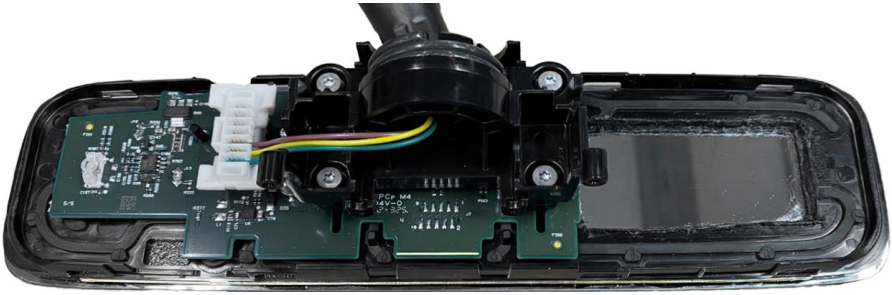
## OPENING THE MIRROR

- Ideally, heat the mirror in an oven with precise temperature control at maximum 70 – 80°C. This will make the plastic more flexible, allowing both halves to separate easily.
- Use a narrow putty knife with rounded edges and press it into the dividing seam at the top of the mirror. Do not push the putty knife more than 5 millimeters inward to avoid damaging the printed circuit board inside the mirror.
- Create enough space with the putty knife to insert a plastic wedge between both mirror halves.
- Remove the putty knife and slowly pull the wedge through the seam. The snap connections will now release one by one.

## DETERMINING THE LIGHT TRANSMITTANCE OF THE MIRROR GLASS

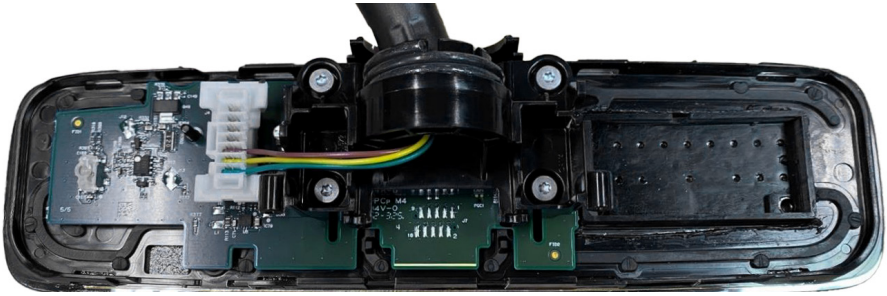
- For mirror glass that allows a lot of light to pass through, the printed circuit board of the LED display becomes visible from the outside of the mirror when multiple LEDs are lit. To prevent this, the display must be mounted in a specially designed housing. If you have access to a 3D printer, you can download the STL files for this housing for free from the download center on the Blu Eye website.
- Download the file here.
- If you do not have a 3D printer, you can order the housing from Track Technologies for a small fee.
- Mirrors from all newer cars in the VAG group, Porsche, Mercedes, etc., are very well light-transmitting. BMW mirrors are less transparent, while some Bentley mirrors allow almost no light to pass through.
- For mirrors with lower light transmission, the LED display can be directly glued to the mirror glass.
- Use a soldering iron with a cutting blade to cut the size of the display housing from the plastic that has been adhered to the mirror glass, if necessary. It is better to avoid using a knife to prevent scratches.
- Break the cut plastic surface loose and remove the double-sided tape underneath (see step 1).
- Press the display against the mirror glass and connect it (see the connection diagram).
- If the printed circuit board of the LED display is visible when all LEDs are lit, then install the printed housing in the cutout made.
- If only the LEDs are visible, then mount the LED display directly on the mirror glass.
- For the gluing, use a high-quality, fast-curing two-component adhesive, such as Innotec Topfix (black) or a similar product in black color.

**Step 1**



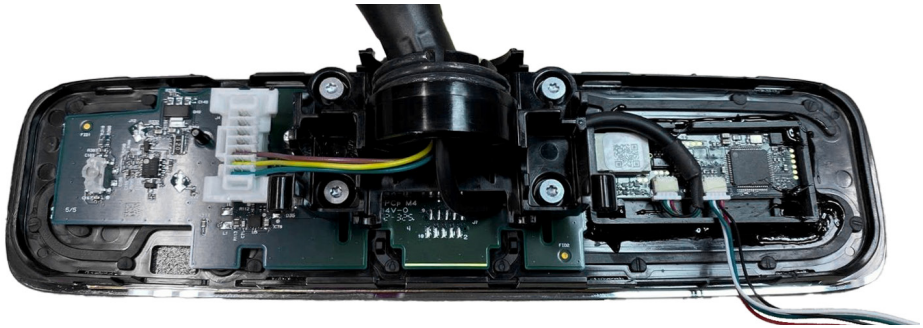
**Step 2**

- Place the printed housing in the cutout.



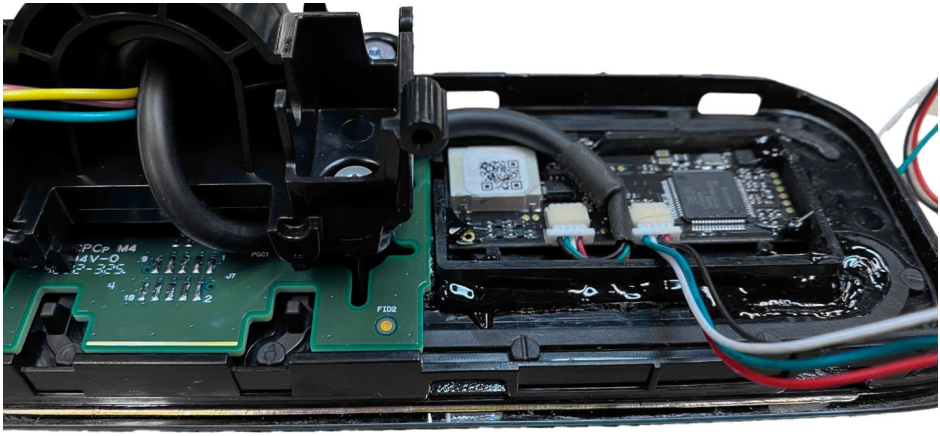
**Step 3**

- Place the LED display in the printed housing and glue both together.
- Pass the display cable with the small white plug through the hollow mirror support and insert it into the **BUS** connector on the mirror display, ensuring the correct orientation of the plug (see **'CONNECTING DISPLAY PLUGS'**). It is advisable to use a tie wrap to provide strain relief for the display cable.
- Insert the cable for the microswitches into the **SWITCH** plug on the mirror display, again paying attention to the orientation of the plug (see **'CONNECTING DISPLAY PLUGS'**).



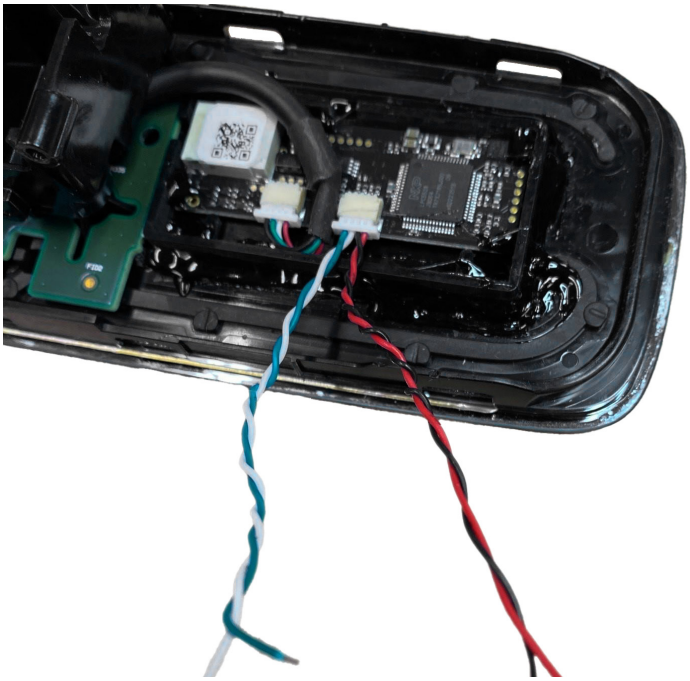
**Step 4**

- Routing the display cable.



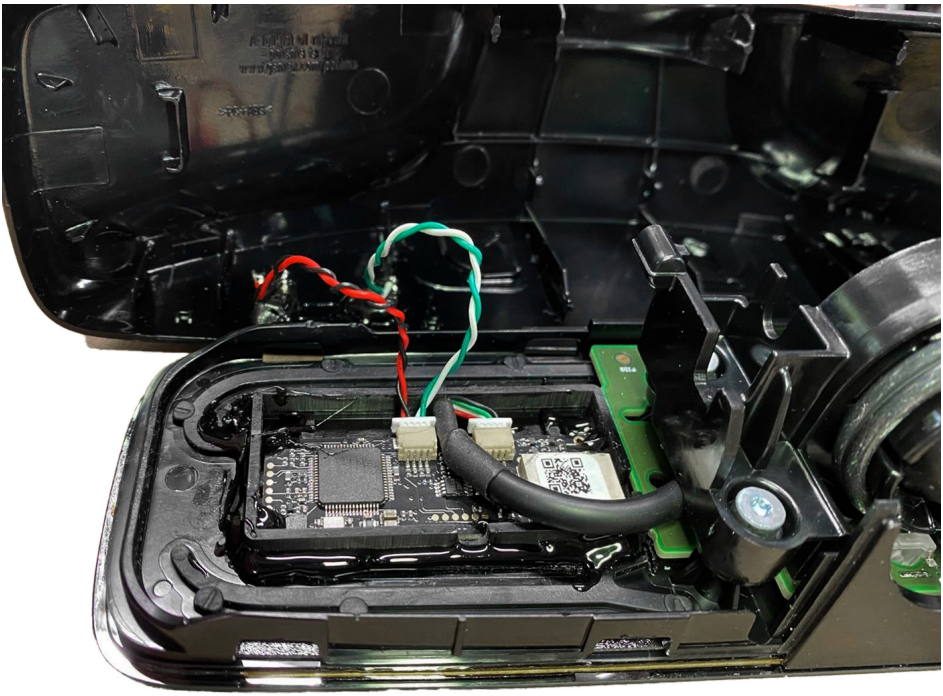
**Step 5**

- Twist the wires of the microswitch plug in pairs and trim them to a sufficient length for the location of the buttons that will be installed in the mirror housing.
- Red/Black: Button 1
- Green/White: Button 2



**Step 6**

- Drill 2 holes with a diameter of 3.5mm in the bottom of the mirror housing.
- Ensure there is enough space for the click system of the mirror, which may protrude up to 10mm into the housing for some mirrors.
- Mount the buttons a maximum of 5 centimeters apart so that they can be operated simultaneously with the fingers of one hand.
- Place button 1 on the left (red/black) and button 2 on the right (green/white) from the driver's perspective.
- Next, apply a fast-curing two-component adhesive around the buttons.
- The buttons can be held in place with a wooden clothespin. Drill a hole in the clothespin where the button protruding from the bottom of the mirror will fit.
- Shorten the legs of the microswitches by about half and solder the respective wire pairs to the microswitches.



- Test the display and check if the buttons operate freely.
- Click the mirror into the mirror housing.
- The mirror can now be reinstalled in the car.

**Tip:** If something goes wrong with gluing the display or the buttons while the adhesive has cured, use a heat gun to heat the glue (maximum 100°C). This will weaken the adhesive, allowing the respective component to be easily removed without damage.

## INSTALLING THE LCD DISPLAY

- The LCD display can be mounted in two ways: with or without the cable guide that is clipped onto the bottom of the display.
- Use the cable guide when the display cable needs to exit from one of the 4 sides of the display.
- Use a round file to create space in the cable guide for routing the display cable.
- Remove the cable guide when the display cable can be routed behind the mounting location of the display.

## INSTALLING THE FIRMWARE

- Connect the system according to the connection diagram on page 5. Wait to install the antenna.
- Insert the USB drive into the USB connector of the receiver.
- Turn on the vehicle's ignition.

**LED display:**

- All LEDs of the display light up.
- When the status LED fades white/red, turn off the vehicle's ignition and remove the USB drive.
- A 'device list' has been copied to the USB drive.
- Remove the USB drive from the receiver.

**LCD display**

- When the lcd display fades white/red, turn off the vehicle's ignition and remove the usb drive.
- A 'device list' has been copied to the usb drive.
- Remove the usb drive from the receiver.

Go to the website https://app.blu-eye.eu/en/my-blueye/ and click 'Register new Blu Eye'. Here you will find the instructions needed for the installation of the Blu Eye firmware.

## LED DISPLAY: ACTIVATION OF THE INSTALLER MODE

- Connect the antenna to the antenna connector.
- Turn on the vehicle's ignition: wait until the status LED of Blu Eye lights up blue. The status LED lights up green when LaserTrack is connected.
- Press buttons 1 and 2 simultaneously for 5 seconds: a sound signal will be heard. The status LED will light up yellow and will blink on and off.
  **Note!** This setting goes through the menu for adjusting the volume and brightness of the LEDs. This menu is activated after pressing both buttons for 2 seconds. Hold both buttons until **'INSTALLER MODE'** is activated.
- The LEDs on the display indicate the amount of interference received by the antenna. An acoustic signal corresponds to the number of LEDs on the display. This makes it easier to find a location free of interference for the antenna when the display is not visible.

| Indication | Result |
|---|---|
| ○ ○ ○ ○ ● ○ ○ ○ ○ | Excellent |
| ○ ○ ○ ● ● ● ○ ○ ○ | Good |
| ○ ○ ● ● ● ● ● ○ ○ | Doubtful |
| ○ ● ● ● ● ● ● ● ○ | Bad |
| ● ● ● ● ● ● ● ● ● | Very bad |

## EXITING 'INSTALLER MODE'

- Hold buttons 1 and 2 for 2 seconds: an acoustic signal will be heard. The status LED lights up blue.
- The status LED lights up green when LaserTrack is connected.
- Blu Eye is now ready for use.

## LCD DISPLAY: ACTIVATION OF THE INSTALLER MODE

- Connect the antenna to the antenna connector.
- Turn on the vehicle's ignition: wait until the display has started up.
- Tap on the right side of the screen (red outlined in the image).

The screen below will appear. Tap on **INSTALLER MODE**.

The interference level on the antenna is displayed in 10 steps.

The signal blocks on the display indicate the amount of interference being received by the antenna. An acoustic signal corresponds to the number of signal blocks on the display. This facilitates finding a location free of interference for the antenna when the display is not visible.

| | |
|---|---|
| 1 - 2 blocks: | green (excellent) |
| 3 - 4 blocks: | green (good) |
| 5 - 6 blocks: | orange (doubtful) |
| 7 - 8 blocks: | orange (bad) |
| 9 - 10 blocks: | red (very bad) |

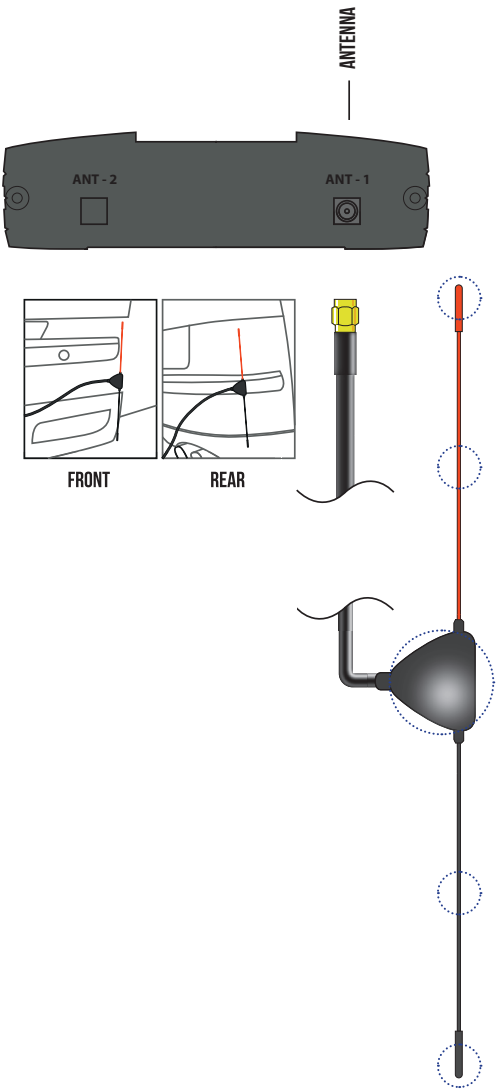
## EXITING 'INSTALLER MODE'

- Tap on the right side of the screen (red outlined in the image on page 12).
- The display returns to the detection view.
- Blu Eye is now ready for use.

## LOCATION FOR THE ANTENNA

- Determine the location for the antenna: on a corner of the front or rear bumper (see the connection diagram on page 15).
- Mounting in the front bumper provides the best reception towards the front. Mounting in the rear bumper provides the best reception towards the rear.
- Always mount the antenna vertically with the red radial pointing upwards.
- Preferably, first secure the antenna with duct tape on the outside of the chosen location. Start the engine and turn on all lighting and accessories.
- Due to signal reflections in the workshop, it may be necessary to drive the car outside for a reliable execution of this test.
- LED lighting in the car is a common source of interference. This is caused by the pulsing control of the LEDs. Preferably, place the antenna as far away as possible from LED lighting and the wiring of the lighting.
- When 'installer mode' indicates that the chosen location on the outside of the bumper is sufficiently free of interference, move the antenna to the same location on the inside of the bumper.
- Check that the antenna also has an intererence free reception at this location.
- If there is not enough space behind the bumper to mount the antenna fully vertically, mount the red radial as vertically as possible and bend the black radial up to a maximum of 45 degrees.
- Never mount the antenna directly next to (>5 cm) or on metal parts of the vehicle!
- Finally, secure the antenna on the inside of the bumper. Use a 2-component adhesive or thermal adhesive and ensure that the surface is dry and clean. Attach the antenna at least at the marked points as indicated by circles in the image on page 15. This will prevent the radials from moving relative to the surface. This movement can lead to fading and, consequently, unwanted notifications from Blu Eye.

**Important:** for maximum performance of Blu Eye, only the first or second green LED should be illuminated at the chosen location for the antenna. For the LCD display, this corresponds to the first through fourth green blocks on the signal bar.




- Refer to the user manual for the operation and control of Blu Eye.

## ANTENNAS

The included VCD dipole antenna is suitable for the most common situations and provides good reception results. If the VCD dipole antenna cannot be used or if maximum reception is desired, we offer the following alternatives:

- Modification of the existing shark fin antenna: A modification of the shark fin antenna is possible for nearly all car brands. This modification can only be performed by the technicians of Track Technologies.
  **Performance:** better than the VCD dipole antenna.

- Plate antenna (18 cm long) with angled mounting base. Suitable for installation on the roof or rear spoiler.
  **Performance:** better than the VCD dipole antenna.

## TECHNICAL SPECIFICATIONS

- Supply voltage: 10 - 16V.
- Power consumption: maximum 550mA.
- Fuse: 3A.
- Frequency range: 380 – 430MHz.
- TETRA detection through 'Waveform recognition', no decoding
- Temperature range: -20°C - +50°C
- Receiver dimensions: 137 x 114 x 32mm. (lxwxh)
- Receiver weight: 475 grams
- LED display dimensions: 54 x 18 x 5.6 mm. (lxwxh)
- LED display weight: 6 grams
- LCD display dimensions without cable guide: 74 x 51 x 10mm. (lxwxh)
- LCD display weight: 37 grams
- Antenna dimensions: total length of antenna elements: 345 mm.

TRACK
TECHNOLOGIES

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